



Perspective: “The Financial Impact of Alternative Water Project Delivery Models” in the Water Sector

U.S. EPA Water Infrastructure and Resiliency Finance Center
February 2017

Introduction

Public-Private Partnerships, Public-Public Partnerships, and Performance Based Infrastructure project delivery models (“P3”, “PPP” or “PBI” -- together “Alternative Project Delivery Models”) are an alternative delivery method for building out needed water infrastructure. While more prevalent in the transportation sector, Alternative Project Delivery Models have begun to appear in the water sector. The U.S. EPA sponsored and underwrote the University of North Carolina Environmental Finance Center to perform an in-depth examination of nine projects where communities used Alternative Delivery Models in the water-sector. The research examined the proposed and realized benefits, the process involved in closing transactions, and the known performance of the agreements to date. The Alternative Delivery Models discussed in the report are primarily partnership structures, rather than ownership residing with private parties, since the public party retains ownership of the assets.

The traditional project delivery model (commonly referred to as Design, Bid, Build or “DBB”) used by municipal governments or other public water infrastructure typically involves phased procurement of services where a Project Sponsor (“Project Sponsor”) develops infrastructure assets by bidding the necessary services sequentially, starting with the procurement of a design firm to supply the infrastructure design. Bids for construction, which are based on the preliminary design work, are then submitted by a different set of firms under competitive bidding rules. State and local law heavily influence these processes and usually require that sponsors select qualified bidders on the basis of the lowest cost bid.

Under a P3, the government sponsor retains ownership of the infrastructure asset, while the private sector is afforded a greater role in delivering and managing the asset compared to conventional procurement. The government contracts with a private company to build or improve an infrastructure asset and then maintain and operate that asset for a number of years (usually a significant portion of the useful life) in exchange for a stream of revenue. The revenue stream typically takes the form of either user fees received directly from a rate-paying user base or availability payments contractually delivered by the government entity which assure a set amount of revenues to the service provider in return for a negotiated service level.

In a P3, the private partner, as the single responsible party for multiple stages of the project, is motivated to minimize costs across each of the project phases. Although the government owns the asset, the private partner typically has day-to-day control over a significant portion of the useful life of the asset. Additionally, alternative water project delivery models can transfer various risks from the public to the private sector (see chart below). Other major benefits of these Alternative Project Delivery Models include the reduction in risks associated with deferred maintenance and the siphoning of resources for other municipal needs. These are common challenges for municipally owned and managed systems, particularly where the water and sewer enterprises are not stand alone operations.

The above benefits of P3 procurements are the result of the attention Alternative Project Delivery Models bring to life cycle considerations. The prime example of lifecycle consideration is project maintenance risk. This risk is transferred by contractual agreement, so that the infrastructure service provider becomes responsible for maintaining the project in accordance with negotiated project performance standards. This attention to lifecycle considerations with contractual agreements should yield more resilient infrastructure outcomes.

Starting the P3 Decision Process

A decision to solicit P3 services should begin with a suitability assessment of using an Alternative Project Delivery Model approach. The U.S. Treasury¹ has identified critical attributes that a Project Sponsor should review when evaluating suitability. These include:

- Potential for bundling responsibility for project phases with one service provider;
- Assuring that there is sufficient project delivery expertise within the likely bidder pool;
- The asset and/or services are contractible and enforceable;
- The project features high capital costs and long-lived assets;
- Capital costs and operating and maintenance costs can be forecast with some degree of accuracy;
- Incentive exists for private sector innovation to deliver cost saving and quality enhancement that is contractible; and
- Potential partners are willing to assume limited demand risk in projects that rely on user fees.

Ideally, these attributes should be known prior to a project being put out for bid. According to the U.S. Treasury, how these attributes measure in importance will determine the potential for alternative delivery models to provide a higher net benefit than conventional procurement.² With this initial screening, Project Sponsors can conduct a value analysis of conventional versus P3 delivery.

One widely used analytical tool, called Value for Money analysis (“VfM”) involves modelling and comparing the estimated project lifecycle cost outcomes based on conventional versus an Alternative Project Delivery Model procurement. The purpose of this exercise is to better inform the decision-making process in determining if a P3 solution is viable. This analysis requires a Project Sponsor to quantify the value of the benefit of various risk exposures and comparing alternative delivery without certain risk exposures to conventional procurement options in which the Project Sponsor retain all risks.

Whereas a traditional DBB would initiate multiple procurements with several contractors in order to develop a project, a P3 procurement process should begin by securing the services of a firm that specializes in assisting buyers of infrastructure services with establishing the ground rules and vetting process for selecting a private service provider, unless a Project Sponsor already has expertise in-house. This requires that the Project Sponsor and/or the advisory firm do the following:

- 1) Articulate the specific needs that must be addressed;
- 2) Develop a Request for Qualifications³ (“RFQ”) that they will rely on to identify qualified firms/consortiums that are capable of addressing the identified needs;
- 3) Develop a Request for Proposals (“RFP”) that will be distributed to the qualified infrastructure service providers;
- 4) Manage the selection and negotiation process with the qualified bidders.

It is important to note that deliberate iterations of the RFP process have allowed for innovations suggested by the qualified bidders to be incorporated into final bid requests.

¹ U.S. Department of Treasury, Office of Economic Policy, April 2016. *An Economic Framework for Comparing Public-Private Partnerships and Conventional Procurement*. www.treasury.gov/resource-center/economicpolicy/Documents/1_PPP%20paper_FINAL%2005%2017%2016.pdf

² Ibid.,

³ This should not be confused with a Request For Quote which would be comparable to a RFP in the scenario described above. The RFQ described in these transactions is more akin to a Request for Information (“RFI”).

Project Delivery Structures of Alternative Delivery Models

The decision to pursue an Alternative Delivery Model is largely dependent on the Project Sponsor's ultimate goals, the local environment in which they operate and the financing tools available to them. Short summaries of the most common varieties are provided below.

*Design Build ("DB")/Construction Manager at Risk ("CMAR")*⁴ - The simplest alternative delivery form is referred to as Construction Manager at Risk. This P3 form is limited to the design and build phases. The Construction Manager ("CM") submits a bid that is tied to the terms of a performance contract which obligates the CM to deliver the project at the bid cost. Construction risk is absorbed by the contractor. This forces a vetting of project design by the construction contractor who takes construction risk and reflects it in their bid price. Once construction is complete the project is transferred to the public owner.

Design Build Finance ("DBF") - This model is limited to the design/build phase of a project before transferring to the Project Sponsor. It weds the design and build phases together as one deliverable. It includes a privately sourced financing option when a Project Sponsor faces capital access constraints (e.g, low credit ratings or statutory debt limits). Similar to CMR, once construction is complete the project is transferred to the public owner for the long-term operation and maintenance (O&M) of the facility.

Design Build Operate Maintain ("DBO") - DBO engages a third party in delivering the project design, the project, and contracts to operate and maintain the facility. Since the contract establishes the parameters by which the service provider will be compensated, the design of the project should fully factor in future operating and maintenance costs and efficiencies.

Design Build Finance Operate Maintain ("DBFOM") – The intent of the DBFOM Model is to incentivize the successful bidder responsible for delivering the entire lifecycle of the project. The finance component can serve one or more functions. For certain communities the consortium may be able to access the capital market on the basis of a stronger credit rating. However, the primary value for the finance option is the "skin in the game" factor that can drive better performance, invite innovative risk taking, and benefit both parties. Alternative Project Delivery Model contracts that include the finance component are often structured with revenue models that reward performance with higher returns (see next section). Linking capital returns to project performance incentivizes the service provider to maximize operational efficiency over the full life cycle of the project since the revenue sharing model is typically determined at closing. This is typically executed under a concession contract.

Revenue Models⁵

P3s come with the following revenue collection options:

Standard User Fee – the service provider sets and collects all fees from consumers of the service and bears all demand and revenue risk. Constraints on what the service provider may charge or rate increase limits sometimes exist. When the agreement is signed, the service provider will typically agree to limit rates or fix rate increases to a set percentage amount so that service users are not faced with higher usage fees as a result of the transaction.

⁴ While CMAR and DB are significantly different for engineering purposes, for financial purposes, the structures are similar enough to be grouped together.

⁵ See U.S. Department of the Treasury, Office of Economic Policy, April 2015. *Expanding the Market for Infrastructure Public Private Partnerships* for a full discussion. www.treasury.gov/connect/blog/Pages/Expanding-the-Market-for-InfrastructurePublic-Private-Partnerships-.aspx.

Revenue Sharing – arrangements establish terms by which revenues are shared between the public and private entity by predetermined formulas. This limits returns for the service provider and payments for the public partner. This model discourages the private sector from profiteering off a system and often caps the amount of profit the private party can earn on a transaction while also guaranteeing a minimum return. Conversely, the public sector shares in the benefits from higher than anticipated revenues and shares responsibility for revenue shortfalls.

Availability Payment – the government sponsor sets rates and collects revenues from users. It then makes fixed, recurring payments to the private partner provided the assets meet contracted quality and performance standards. While the private service provider bears performance risk, the government bears all the demand and revenue risk.

Profit and Risk Sharing

Rate of Return - places a limit directly on the return on investment with allowances for price adjustments to reflect changes in costs and demand. Long price reset intervals put pressure on firms while providing an incentive to manage costs; shorter periods have the reverse effect.

Price Cap – Limits the price of the service instead of the rate of return. Profits are not directly constrained which raises cost control incentives. Under this model, the price increases are set by the rate of inflation less an x factor that represents the negotiated expected improvement in the service provider’s productivity.

Profit Sharing – this model requires the service provider to share profits with the government sponsor in exchange for downside protection. A variant on this model establishes return floors and ceilings assuring guaranteed minimum and maximum returns.

Project Sponsors can best implement revenue models with incentive structures by incorporating these options in the competitive procurement process. The sponsor should define the structure of the desired contract with private firms bidding on specific contract elements (i.e., their preferred sharing percentages or demand and rate of return thresholds).

Risk Transfers Are Key Attributes of Alternative Delivery Models

The following table provides a general guide to how infrastructure service delivery risks may be allocated between the public and private parties. A Project Sponsor can select which of the following risks they would like to transfer, given their specific circumstances.

Table 2: Comparative Ease and Cost of Transferring P3 Risks

Risk Category	Ease of Transfer	Comparative Cost of Transfer
Design	Easy	Medium
Construction	Easy	Low
Permitting	Hard	High
Financing	Easy	Variable
Technology/Performance	Easy	Low
Operating & Maintenance	Medium	High
Regulatory Compliance	Hard	High
Demand/Revenue	Hard (tends to revert to owner)	High (some hedges possible)
Force Majeure (“Acts of God”)	Hard	High

Risk transfer comes with a price that is reflected in the bid. When compared to conventional procurement, this will generally result in a higher delivery price since the private partner will require compensation for assumed risks. The value to the Project Sponsor of the risk transfer is the capping or elimination of exposure to costs that have a likelihood of being incurred under conventional DBB methods. The Project Profiles in this report include risk matrices that show how project risks are allocated between the public and private sector partners.

Small System Challenges

The projects reviewed here are all large projects since P3s often demonstrate the most substantial benefits when the transaction costs are proportionally smaller to the overall project costs. That is, smaller projects' benefits from lower cost and improved delivery time are quickly outweighed by transaction costs that are not especially dependent on project cost. The key to successful P3 engagements are limited by the markets size and the ability of sponsors and their advisors to manage the vendor relationship. The West Coast Infrastructure Exchange has investigated this issue and has developed strategies that would allow small systems to realize P3 benefits via project aggregation. The premise being that project aggregation could yield an attractive package for prospective service providers.⁶

Tax Implications of Project Delivery Choices

Unique to the United States, tax-exempt municipal financing is the principal vehicle that local governments use to fund infrastructure. With limited exceptions related to private use of a facility, government owned and operated facilities qualify for low cost, tax-exempt municipal financing under the US tax code. This is usually the cheapest (lowest interest rate) and most readily accessible form of debt. The cost of funds will always be higher when financing is the responsibility of the P3 service provider— the extent to which will depend on the allocation between equity and debt capital. Consequently, any consideration of alternative delivery that involves private ownership or operating contracts with private entities can impact the cost of capital. Project Sponsors must weigh this against the ability to use available low cost financing. If alternative infrastructure delivery is associated with funding that is not least cost, the rationale must be made clear to all stakeholders.

Subject to safe harbor provisions governing management contracts, the debt cost component can benefit from the availability of tax-exempt financing.⁷ If contract terms violate the safe harbors, and a tax opinion cannot be rendered that the contract conforms to the requirements of the IRS Code, the project can still benefit from tax-exempt financing if a Private Activity Bond ("PABs") volume cap allocation is made available by the state. Access to PAB capacity can facilitate the use of P3 for Project Sponsors used to relying on low cost, tax-exempt financing.

PABs give P3 private partners access to low cost tax-exempt financing; however, this comes with on-going tax code compliance to maintain tax-exempt status for the bonds. Private debt that does not qualify or benefit from PAB volume cap allocation is often the most expensive. In the U.S., private debt is often associated with off-balance sheet arrangements that offers funding that is not tied to a municipal debt obligation.

State Enabling Legislation

The ability of local governments to consider Alternative Delivery Models is also shaped by state laws. Specific state laws authorizing P3 arrangements are highly fragmented. There are 11 states that provide broad statutory authorization for P3 engagements, including CA, IL, PA, VA and FL. In states that do not have specific authorizing legislation, contract and

⁶ www.westcoastx.com/about/water-infrastructure-aggregation-report.

⁷ See IRS Revenue Procedure 2016-44 for the most recent expansion of the safe harbor rules governing contracts between public owners and private management partners and how the structure of such contracts can affect the tax treatment of debt raised for the managed assets. www.irs.gov/pub/irs-drop/rp-16-44.pdf

procurement laws will generally govern P3 transactions. This “patchwork” legal landscape is a limiting factor for potential investors and project developers that need to scale business models across jurisdictions.

The presence of P3 legislation sends a strong signal to investors that a state sees value in private involvement in infrastructure financing and delivery. The absence of such laws can have the opposite effect.⁸

Key Considerations for Readers and Objective of the UNC Report

The report’s objective is to provide case specific information in order to advance the water sector’s knowledge and understanding of Alternative Delivery Models undertaken to date. The report’s objective is not to advocate – in any way – for one form of infrastructure procurement and funding over any other forms. The report focuses on providing an unbiased assessment of a range of Alternative Delivery Models in the water space over the lifecycle of the partnership to date versus initial expectations.

Although the report reviews the chosen transactions from initial procurement to operations, and offers a transparent look at project successes and failures, it does not provide a basis from which to compare the outcomes as described herein with an alternative set of project cases that relied solely on traditional procurement methods. As such, the reader should keep in mind that the experiences described can only be compared anecdotally with traditional procurements.

Finally, we would like to recognize the efforts of Jeff Hughes and his staff at the University of North Carolina’s Environmental Finance Center. Without their commitment and dedication to the work required to identify representative profiles for review and to build strong working relationships with the Project Sponsors and contracted parties, this report would not have been possible. We trust that the reader will find value in its’ contents and that such value will assist municipal officials, advisors and their potential partners when evaluating, selecting and negotiating contract terms for the delivery of infrastructure services.

Jim Gebhardt
Director, U.S. EPA Water Infrastructure and Resiliency Finance Center

Michael Patella
Senior Policy Advisor, U.S. EPA Water Infrastructure and Resiliency Finance Center

March 2, 2017

Read UNC’s “The Financial Impact of Alternative Water Project Delivery Models” at:
<http://www.efc.sog.unc.edu/project/alternative-water-project-delivery-models>

⁸ U.S. Department of the Treasury, *Expanding our Nation’s Infrastructure through Innovation Financing*, September 2014.
<https://www.treasury.gov/press-center/press-releases/Documents/Expanding%20our%20Nation%27s%20Infrastructure%20through%20Innovative%20Financing.pdf>